

COMPUTATION OF WALL THICKNESS

Abstract of the Disclosure

A method for automatic vessel wall thickness measurement at any point along the perimeter of either luminal or outer vessel wall boundaries. The method
5 employs both Delaunay triangulation and multiresolution tiling. The MaxMin angle property of the Delaunay triangulation is used to define the minimum energy function to calculate thickness. Multiresolution tiling is employed to enable the MaxMin angle lemma to be determined. The triangulation MaxMin angle lemma enables a minimal energy function to be defined based on
10 triangulation angles, providing a stable and consistent geometrical computation. Additional morphological indexes can be assessed to achieve comprehensive quantification of vascular morphology. For example, based on the wall thickness, a set of vascular shape descriptors can be developed to distinguish different types of plaque morphology at different parts of a vessel wall.